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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 13855WO10143	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IL 03/00620	International filing date (day/month/year) 25.07.2003	Priority date (day/month/year) 25.07.2002
International Patent Classification (IPC) or both national classification and IPC C05B17/00		
Applicant ROTEM AMFERT NEGEV LTD.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.



☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 4 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

**CORRECTED
VERSION**

Date of submission of the demand 19.02.2004	Date of completion of this report 22.11.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Rodriguez Fontao, M- Telephone No. +31 70 340-3758 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IL 03/00620**

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

2, 4-15 as originally filed
1, 3 received on 08.09.2004 with letter of 05.09.2004

Claims, Numbers

7-20, 28 (part), 29-39 as originally filed
1-6 received on 08.09.2004 with letter of 05.09.2004
21-27, 28 (part) filed with telefax on 19.10.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/IL 03/00620**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-9,11,12,14-20,23,24,26-31,33,35,36
Inventive step (IS)	Yes: Claims	
	No: Claims	1-39
Industrial applicability (IA)	Yes: Claims	1-39
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: WO-A-0076941

D2: US-A-5830255

D3: US-A-5865870

D4: US-A-5047078

1. The applicant has amended claim 1 with the introduction of the term "free flowing" in order to characterise the agrochemical composition. It is to be noted that this term is to be considered merely as a result to be achieved rather than a/(the) technical feature(s) necessary for achieving this result. In this sense claim 1 does not meet the requirements of Article 6 PCT and the term "free flowing" cannot be considered as a further contribution to the definition of the claim.

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 to 9, 11, 12, 14 to 20, 23, 24, 26 to 31, 33, 35 and 36 is not new in the sense of Article 33(2) PCT.

Document D1 discloses a solid granular agrochemical composition containing a salt of phosphorous acid and at least one other NPK nutrient that is water soluble and that comprises metal microelements and a process for the manufacture thereof (see claim 1; page 7, lines 10 to 13; page 10, lines 12 to 15; page 15, lines 14 to 17). The subject-matter of claims 1 to 5, 7 to 9, 11, 14 to 17, 19, 20, 23, 24, 26 to 31, 33, 35 and 36 lacks novelty in view of this document.

Document D2 discloses phosphorus fertilizers that have the facility to be used as liquids or solids (granule or powder) (see column 2, lines 50-52) and in particular a concentrated phosphorus fertilizer comprising a buffered composition comprising at least one phosphorous-containing acid or salt thereof such that when said composition is diluted with water having a pH of about 6.5 at a ratio of about 1 part fertilizer to about 40 parts water, there is formed a substantially fully solubilized use-dilution fertilizer having a foliage-acceptable pH for phosphorus uptake (see further claims and passages cited in the search report). The teaching of this document deprives the subject-matter of claims 1, 3 to 9, 15, 17, 19, 23 and 26 from novelty.

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IL 03/00620

Document **D3** describes concentrated phosphorus fertilizers which are absorbed quickly into plant systems and improve plant growth. This document also explicitly discloses dry preparations of the same fertilizers (see column 2, line 48-49). Particularly described are fertilizers having a combination of phosphorous acid or its salts thereof, and either (a) polyphosphoric acid and its salts thereof; or (b) phosphoric acid and its salts thereof. This combination phosphorus fertilizer, when combined within a specific ratio range, increases phosphorus uptake to plants thereby enhancing plant growth (see claims and passages cited in the search report). The subject-matter of claims 1 to 5, 7 to 9, 11, 14 to 17, 19, 23, 24 and 27 lacks novelty in view of this document.

Document **D4** describes a method and compositions for enhancing the efficacy of a phosphate fertilizer, comprising adding to said fertilizer an effective amount of a scale inhibiting compound such as a hydroxy ethylidene diphosphonic acid (see column 4, line 67- column 5, line 5; see further claims and passages cited in the search report). The subject-matter of claims 1, 2, 4, 5, 7, 8, 11, 12, 15 to 19, 23, 24, 26 and 27 lacks novelty in view of this document.

Dependent claims 10, 13, 21 22, 25, 32 and 34 to 39 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows: The subject-matter of these claims is considered to be mere embodiments within the ambit of the main claim. The technical features of said claims have not been shown to substantiate to a technical effect in a non-obvious manner and are considered to be common practice for a man skilled in the art.

AGROCHEMICAL COMPOSITION CONTAINING
PHOSPHITE AND PROCESS FOR THE PREPARATION
THEREOF

EPO - DG 1

08.09.2004

5 **Field of the Invention**

(96)

This invention relates to a solid, granular and uniform in the particle size, free flowing, water-soluble, agrochemical composition, containing phosphite and being homogeneous in the chemical composition, that contains at least one other NPK nutrient, and comprises metal
10 microelements.

Background of the Invention

An ideal agrochemical composition would provide all elements necessary for the plant growth, it would provide some protection against pests, and it
15 would not leave harmful or useless deposits in the soil. Such composition should be further easy for storage, manipulation, usage, and marketing. From the aforesaid results that an ideal composition should be solid, particulate but not dusty, and water-soluble.

20 Phosphites are used in agrochemical compositions as a phosphorus source and for their pesticidal potential. Publication WO 00/76941 claims potassium phosphites as a fertilizer for trees, vines and crops. U.S. Patent No. 5,514,200 teaches that phosphite fertilizers inhibit the beneficial symbiosis between plant roots and mycorrhizal fungi, and further promote

-3-

Other objects and advantages of present invention will appear as description proceeds.

5

Summary of the Invention

This invention provides an agrochemical composition that is solid, granular and uniform in particle size, free flowing, and water-soluble, and contains phosphite and is homogeneous in the chemical composition, which composition contains at least one other NPK nutrient, and comprises metal microelements. The invention provides a process for manufacturing said agrochemical composition, which process is characterized in that it comprises i) blending and heating at a temperature from 60°C to 130°C a mixture containing phosphorous acid, at least one other NPK nutrient, metal microelements and other additives enhancing its fertilizing and pesticidal properties or modifying functional or aesthetic properties of the particles; ii) introducing a base into the mixture, thus at least partially neutralizing phosphorous acid, wherein the amount of the base is sufficient to provide that the pH of a 1% water solution of the final composition will be between 3.4 and 7.0; iii) homogenizing the mixture, while optionally lowering the pressure above the mixture; iv) and cooling the mixture, while obtaining a homogeneous, granular, free flowing and not caking material, with low hygroscopicity, containing from 0% to 1% water.

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CLAIMS

(96)

1. A solid, granular, free flowing, agrochemical composition containing a salt of phosphorous acid and at least one other NPK nutrient, that is homogeneous in the chemical composition and uniform in particle size, that is water-soluble, and that comprises metal microelements.
2. An agrochemical composition of claim 1, wherein at least one of the nutrient is chosen from the group consisting of monoammonium phosphate, monopotassium phosphate, dipotassium phosphate, potassium chloride, ammonium chloride, potassium sulfate, ammonium sulfate, and urea.
3. An agrochemical composition of any one of claims 1 to 2, wherein the salt of phosphorous acid is chosen from potassium salt, ammonium salt, and sodium salt.
4. An agrochemical composition of any one of claims 1 to 3, wherein at least one of the metal microelements is chosen from the group consisting of zinc, copper, iron, manganese, molybdenum, and boron.
5. An agrochemical composition of any one of claims 1 to 4, wherein the metal microelements are present as any commercially available salt.
6. An agrochemical composition of any one of claims 1 to 4, wherein the metal microelements are present in the form chosen from the group

21. An agrochemical composition of any one of claims 1 to 20, which contains from 0.1 to 0.4 wt% water.
22. An agrochemical composition of any one of claims 1 to 21, which contains from 0.005 wt% to 2 wt% microelements.
23. An agrochemical composition of any one of claims 1 to 22, which contains from 15 to 35 wt% salts of phosphorous acid.
24. An agrochemical composition of any one of claims 1 to 23, which contains from 65 to 85 wt% of NPK nutrients, other than salts of phosphorous acid.
25. An agrochemical composition of any one of claims 1 to 24, which contains from 0.05 wt% to 0.5 wt% microelements.
26. An agrochemical composition of any one of claims 1 to 25, which provides a solution having pH 3.8-5.3, when dissolved 1 part in 100 parts of water.
27. An agrochemical composition of any one of claims 1 to 26, which is a free flowing, solid particles, composition.
28. A process for the manufacture of an agrochemical composition according to any one of claims 1 to 27, comprising i) blending and heating at a temperature from 60°C to 130°C a mixture containing phosphorous acid, at least one other NPK nutrient, metal microelements and other additives; ii) introducing a